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# The Standards Forum and Standards Actions



## DOE Technical Standards Program

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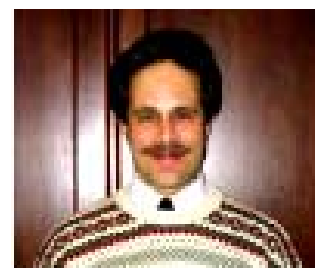
## Technical Standards Program

### Manager's Note

I hope that everyone has had a safe and enjoyable summer. I think that most will agree it goes by far too quickly! As we head into the fall season, I am pleased to present the September 2005 edition of the DOE Technical Standards Program's (TSP's), *The Standards Forum and Standards Actions*. In this publication you will find articles pertaining to technical standards issues from within the Department of Energy, and also from the private sector. In either case, I think that you will find the articles both informative and interesting.

The TSP continues to operate smoothly. With autumn upon us, my thoughts turn toward the preparation of the annual report to the Office of Management and Budget (OMB) on non-Government standards use and participation. Most of you know that the information I asked for earlier this summer is not only used to update TSL-1, *Department of Energy Standards Index* and TSL-4, *Directory of DOE and Contractor Personnel Involved in Non-Government Standards Activities*, it is also needed to comply with this mandatory OMB report. I would like to thank the technical standards managers (TSMs) for their continued support in contributing to this effort.

The RevCom online comment and review system is operating quite well now. Based on feedback from our TSMs, we are incorporating a new feature into the process. After a preparing activity (PA) issues a comment response package, a final draft version of the standard is posted on the RevCom system for a 10-day period. In this way commentors can verify that their comments were resolved to their satisfaction, and are in accordance with the PA's response package. The first standard to use this "final draft" feature will be SAFT-0103, *Management of Items and Areas Containing Low Levels of Beryllium*. I look forward to your feedback on the value of this new tool.



Jeff Feit

### The Articles

Most of us in the DOE technical standards community have a fairly good working knowledge of technical standards, and most have heard of the American National Standards Institute (ANSI). However, how many of us really understand the differences between ANSI-backed standards and non ANSI-backed standards? Karl G. Ruling, of the Entertainment Services and Technology Association (ESTA) provides an article entitled, *The Halo Effect: American National Standards and the Rest*. This article sheds some light on a very important, albeit misunderstood process in the standards community. He discusses such things as ANSI's role in the standards community, what difference the ANSI process can make, why the ANSI approval process is skipped in some cases, and how to recognize an ANSI standard.

In an article by Michael M. Fisher, PhD. entitled, *Standards Development for Reporting of Declarable Substances – Recovering Plastics from End-of-Life Products*, we are introduced to an evolving problem in industry. How do we handle the recovery of plastics for reuse when they no longer exist in their "virgin-resin" form? For example, in the automotive industry, problems arise concerning material recovery when a product reaches the end of its useful life. When plastics are dismantled and shredded, they are often mixed together with dissimilar materials such as metal, glass, other plastics and dirt. When this occurs, the individual plastics no longer exhibit their original "virgin-resin" properties, rendering them inadequate for certain demanding applications. To meet this challenge, a new ASTM committee was formed (ASTM F40) on "Declarable Substances in Materials."

Tony Eng, Director of the Headquarters Office of Facility Authorization Bases, contributed a timely

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article entitled, *DOE Revises "Integration of Environment, Safety, and Health into Facility Disposition Activities" Standard*. In the late 1990s, this document was identified as a "safe harbor" for preparing a documented safety analysis for decommissioning and environmental restoration activities. It was recently revised to render it more explicit with regard to 10 CFR 830, *Nuclear Safety Management, Subpart B, Safety Basis Requirements*. This article describes the details of the revision of this two-volume standard.

Finally, this month's TSM Spotlight shines brightly on an individual whose knowledge, dedication and commitment have done so much for the DOE TSP. Don L. Williams is Group Leader, Reactor and Facility Safety, at the Oak Ridge National Laboratory. He is a long-standing, vital member of the TSP family. I'm proud to say that much of our success over the past 14 years can be attributed directly to Don's savvy and fortitude! I thought that it would be a great idea to feature him in this edition. His article provides some of the history of the program as well as a few interesting personal accounts.

I hope you enjoy reading our publication. See you in December! □

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## The Halo Effect: American National Standards and the Rest

**By Karl G. Ruling, ESTA Technical Standards Manager**

"UL 1573, Stage and Studio Luminaires and Connector Strips, is an American National Standard, right? And so is UL 1640, portable Power Distribution Equipment, isn't it? Aren't all UL standards American National Standards?" No, and neither are all the documents developed by the International Code Council, ESTA, and many other organizations accredited by the American National Standards Institute. Being accredited by ANSI is a precondition for being able to submit standards for approval by ANSI as American National Standards. But not everything written by an accredited standards developer is a standard, and not every standard is submitted to ANSI for approval. There often are reasons why something is not an American National Standard, and not being an ANS does not necessarily mean that a document is deficient. Nevertheless, it is important for standards users to understand what sets American National Standards apart, and to know the status of any document they use.

### What does ANSI do?

The American National Standards Institute doesn't itself write standards. Most standards in the United States (and much of the Western World) are written by non-governmental organizations—trade associations, professional associations, consortia, and private businesses—that see a need for standards to simplify business and life, to protect health and the environment, and to do innumerable other things that can be done if interested parties in a field of human endeavor can agree on a common set of rules, procedures, or specifications that will benefit all in the long run. ANSI helps these efforts by functioning as a central information clearinghouse and coordinating body for its member organizations and by providing model procedures for standard bodies to follow in managing the consensus standards development process in a fair and open manner. ANSI ensures that fair and open procedures are followed, 1) by accrediting a standards developer if the developer's formal, written procedures meet ANSI's essential requirements for fairness, and 2) by vetting the records documenting the development of a standard, and approving that standard; if the records show that the approved procedures had been followed. ANSI does not judge the content of a document, only the process used in writing it.

Some of the major features of the American National Standards process include:

- A centralized project initiation notification system that allows interested and affected parties to comment on whether or not a project should be pursued, as well as providing them with information on how to participate in the work;
- Consensus on a proposed standard being reached by a consensus body (a voting group) that includes representatives from materially affected and interested parties;
- One or more open public reviews for any draft standard, during which any member of the public may submit comments;
- A process in which comments submitted by voting members of the relevant consensus body and by public review commenters are evaluated, responded to, and, if appropriate, incorporated into the draft standard; and
- An appeals process that anyone can use if he believes that due process principles were not sufficiently respected during the standards development process.

Accreditation to write American National Standards does not mean that everything written by the accredited group is automatically an American National Standard. It is possible that the ANSI-approved procedures weren't followed. It is also possible that the ANSI-approved procedures were followed, but the document wasn't submitted to ANSI for approval. If either of these is true, the document won't be an American National Standard. There are many reasons why an organization might write something but not pursue ANSI approval for it.

### Why skip ANSI approval?

Some of the more common reasons for skipping ANSI approval include:

- The value of American National Standard status is not judged to outweigh the administrative and financial costs associated with having ANSI approve the standard.

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- Approval as an American National Standard might impede the document's adoption outside the United States.
- The organization may have an open standards process for some work and a members-only process for other types of work, and decide that the members-only process is appropriate for a particular project.
- The area being standardized may be in a state of rapid technological change, so codifying a practice or specification as an American National Standard may be considered premature.
- The status of an American National Standard does not seem appropriate for a document that is largely informational or that makes very mild recommendations and suggestions in an informal style.

Some of these reasons can be seen at work in the portfolios of organizations listed at the top of this article. ESTA's Technical Standards Program only has one procedure for drafting standards. Most, but not all, of the guidance documents we have written or are developing are intended to become American National Standards, since there is no alternative procedure, and the costs of having ANSI vet the process usually are felt to be outweighed by the authority that "American National Standard" gives our documents. Furthermore, we have good international support for our work, so the "American" in the title does not seem to put off many non-U.S. citizens.

Most of our documents have been on the ANSI track, but there have been some exceptions, although they have been developed by essentially the same process as our American National Standards. Our Recommended Practice for Ethernet Cabling Systems in Entertainment Lighting Applications, the Supplement to the Recommended Practice for Ethernet Cabling Systems in Entertainment Lighting Applications, and the forthcoming Introduction to Modern Atmospheric Effects, fourth edition, have all benefited from public review and comment. In addition, these documents have been written by working groups reflecting the diversity of interests in the marketplace. That is, the Ethernet cabling documents were written by people who use lighting systems, and not only those who make or sell them; and the atmospheric effects document was written by a group that includes people who use fog effects besides those who make or sell fog equipment. Membership in the working groups is open to all who are affected by the work of the groups; there is no fee, and membership in ESTA or any other group, is not a requirement.

There are currently no plans to submit these Ethernet and effects documents to ANSI for approval as American National Standards because they are primarily informational documents, written in an informal style, that make some fairly non-controversial suggestions for things people should consider when building a network or using theatrical fog. They were not submitted to ANSI for approval as American National Standards because the additional authority given by such a designation did not seem necessary for non-controversial, informational documents.

The other two organizations mentioned at the top of this article have different procedures for different projects. The International Code Council, for example, is well known for the International Building Code, which is the successor to the also well-known Uniform Building Code. The IBC and 36 other ICC standards are not American National Standards. They go through public review, as American National Standards must, and there is a formal appeals process, but the consensus body for these documents is limited to "code enforcement and fire officials who, with no vested interests beyond public safety, represent the public's best interest," according to the ICC Fact Sheet. There is an argument that can be made for this restriction, but it means that materially affected parties, such as builders, building owners, and members of the general public—people who might see things differently than do code enforcement and fire officials—are not part of the consensus body and have no vote. However, the ICC has another procedure that is accredited by ANSI and has two American National Standards that have been developed by that procedure: ICC/ANSI 2.0-1998, Manufactured Housing Construction and Safety Standards, and ICC/ANSI A117.1-2003, Accessible and Useable Buildings and Facilities.

Underwriters Laboratories has an immense portfolio of standards, and some, but not all, of them are American National Standards. The procedures for the ANSI/UL and UL-only standards are different.

| ANSI/UL standards  | UL standards   |
|--|--|
| Proposed standards or changes to standards are announced in ANSI's Standards Action and submitted to public review.                    | Proposed standards or changes to standards are not announced in ANSI's Standards Action. There is no public review. Proposals are circulated to the Standards Technical Panel and to subscribers to UL standards. Further circulation is prohibited. |
| All public review comments are addressed and circulated. If there is a continuing objection, commenters are given the right to appeal. | Comments from subscribers and STP members serve to advise UL staff. UL staff members respond to comments, but are not required to attempt to resolve them to the satisfaction of the commenter.  |
| The consensus body is the STP, the members of which are selected to reflect a balance of the interest groups affected by the standard. | The consensus body is the UL staff.  |

The two processes are clearly different, but many people assume that, since UL is ANSI-accredited and some UL standards are American National Standards, then all UL standards are American National Standards. This misperception, which many people also have with other standards organizations, has been labeled by members of the ANSI Federation as "The Halo Effect."

### **What difference does American National Standard approval make?**

You can count on an American National Standard to be a consensus standard. This does not mean that other standards are not consensus standards, but you have to be the judge. First, you have to look at the composition of the voting body. Does it reflect a diversity of interests, or are the members all employees of one company or members of only one affected interest group? Are the members of the voting body from all over the regions of the world where the standard is claimed to be useful, or only from one nation, state, or region? Next, you have to look at the procedures. Do they allow comment and criticism from all affected parties, or only a select group; and is there an appeals process? Today most standards organizations put procedures and other basic reference documents on their website. You can find ESTA's procedures on the Technical Standards Program part of the ESTA website [www.esta.org/tsp/](http://www.esta.org/tsp/). You will find the ICC's procedures and FAQs about them on its website [www.iccsafe.org/cs/](http://www.iccsafe.org/cs/). You will find information about ANSI/UL procedures on the UL website <http://ulstandardsinfo.net.ul.com/stp/> but the UL-only procedures are not posted.

Finally, American National Standards, as certified consensus standards, are better references to cite if there is ever any disagreement with a government official or anybody else about what "standard practice" is in an industry. Government agencies, such as the Occupational Safety and Health Administration, are required by law to use consensus standards whenever possible. An American National Standard will trump a non-ANS every time.

### **How do you recognize an American National Standard?**

It is easy to tell if a standard is an American National Standard, if you have a copy of it. If it was written by a group accredited by ANSI as a committee, "ANSI" will appear in the alphanumeric designation, as in "ANSI E1.11-2004," which is our new version of USITT's DMX512/1990. If the group is accredited as an organization, "ANSI" might not appear in the alphanumeric designation, but there will be a notice at the front of the document saying something like, "This edition of NFPA 1126 was approved as an American National Standard on February 9, 2001."

If you don't have a copy of the standard in question, the NSSN website [www.nssn.org](http://www.nssn.org), which is run by ANSI, is a good source of information. It has information about standards from more than 600 national, foreign, regional and international standards-drafting bodies. It will tell you whether or not a standard has been approved by ANSI, and also if a document is a draft document that is intended to become an American National Standard.

Be careful about inferring the status of standards from other websites. They may have succumbed to "The Halo Effect." For example, TÜV America says on its website that it will test commercial audio equipment to "UL/ANSI 813." UL 813 exists—it is now in its seventh edition—and was announced as an ANS project in 1995, but as of December 7, 2004, it still hadn't been accepted as an American National Standard. □

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## Standards Development for Reporting of Declarable Substances

### Recovering Plastics from End-of-Life Products

by Michael M. Fisher



**Michael M. Fisher, PhD.**, is senior director of technology for the American Plastics Council in Arlington, Va. His responsibilities focus on plastics in the automotive and electrical and electronic markets with an emphasis on future growth and product stewardship issues. Fisher is a member of ASTM Committees D20 on Plastics and F40 on Declarable Substances in Materials and Chairs ISO Technical Committee 61 on Plastics.



Regulations requiring the reporting of chemical compounds that are used to make plastic formulations have arisen in various regions of the world. European Union end-of-life product regulations involving packaging, automotive, and electric/ electronic applications are examples of these requirements. Such regulations have the potential for global impact when multinational corporations are involved. To help meet evolving market needs related to declarable substance requirements, a new ASTM International committee, [F40](#) on Declarable Substances in Materials, was formed with input from a broad cross-section of stakeholders, including the chemical and plastics industries.

To best describe the effect of these regulations and to illustrate where standard tests are required it is necessary to understand how plastic materials are selected and flow through the manufacturing process to end-of-life and resource recovery stages. The emphasis in this article is on plastics used in durable goods, such as automobiles and electrical and electronic products, which represent a significant component of global trade.

Plastics are formulated to meet a variety of requirements including, for example, stiffness, ductility, color and durability. These requirements are primarily focused on meeting the use-phase needs of specific applications such as computer housings or automobile bumpers. Over the years, ASTM [Committee D20](#) on Plastics has helped to serve the standards development needs of the plastics industry, emphasizing the critical areas of terminology and material performance testing. Understanding chemical composition issues that can arise during product end-of-life and material recovery stages has begun to define a new set of challenges.

### Recovery Considerations

Once a device has reached the end of its useful life, it is either dismantled to recover certain components or shredded to recover its metal content. The large scale commercial shredding operations in place today were developed with a focus on metals recovery and present many challenges to the recovery of a growing proportion of plastic materials. After shredding, the plastics are commingled with dissimilar materials such as residual metals, glass or dirt, and multiple types of plastics are often left mixed together. The latter issue is important because the properties of many plastics are reduced significantly in the presence of other plastics. Mixed plastics exhibit different properties than do individual virgin resins. Since the material's initial properties were important in the selection of that plastic for a particular end use, the recovered material may be unfit for that application. This results in using the recovered material in other, often less demanding, applications.

The alternative is to separate the mixed plastic into its individual plastics and much progress is being made toward that end. In addition to the separation of plastics, there is the issue of contamination, particularly with chemical compounds or elements that are restricted in commerce in some manner. Polychlorinated biphenyls or PCBs are a classic example. Consequently, depending on material source, there may be a need to determine both the generic identity of the plastic material and the presence of contaminants or additives during the plastics recovery process.

Beginning in the early 1990s, many of these issues associated with plastics recovery from end-of-life products were addressed by ASTM Subcommittee D20.95 on Recycled Plastics. Today, new standards development activity is under way at the national, regional, and international levels reflecting both regulatory and commercial developments in this field.

### Substances of Concern

Many substances of concern have been identified by regulatory agencies throughout the world. The heavy metals (mercury, lead, hexavalent chromium, and cadmium), PCBs (207 congeners) and dioxins/ furans are often mentioned. Recently, some types of brominated flame retardants used in plastics have gained attention. Of particular concern are the penta- and octa-brominated diphenyl ethers. Other substances that may show a potential for health effects are listed, for example, in the "Dangerous

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Substances" section of EU Directive 67/548 EEC on the classification, packaging and labelling of dangerous substances. Some of the substances are introduced as contaminants as a result of recovery operations. This can occur when different types of end-of-life products are mixed during shredding. In the course of recovering the metals, contamination of the residual plastics can occur, complicating the downstream recovery of plastics.

In the case of flame retardant additives, some FR packages used in the past are no longer being employed commercially; in the case of penta- and octa-polybrominated diphenyl ethers, many of their future uses are being restricted. This has implications for plastics recovery.

## Regulations

Examples of regulations governing the presence of certain substances in both the use phase and at the end-of-life for environmental reasons can be seen in the EU directives for packaging, end of life vehicles, waste electrical/electronic equipment and for the restriction of hazardous substances. These regulations in some cases prohibit the use of a few substances and create the need to identify the location of others. Original equipment manufacturers must be able to collect this information in order to identify applications that may require redesign or could require special handling at product end-of-life.

The automotive industry has worked for several years to develop an efficient system to capture this chemical information, and the electrical and electronic equipment industry has a similar initiative under way. These are industry-led initiatives rather than individual company activities. The automotive industry is well along in creating a repository of information on individual vehicles called the IMDS (International Material Data System). This system contains information on substances contained within a material as well as surface treatments used on the materials. The IMDS provides information gleaned from each step of the manufacturing process, from the manufacturer of a plastic resin, to the processor, to subassembly makers, to the large Tier One system integrators. Consequently, a fully implemented IMDS would contain a complete breakdown of a vehicle that shows every part in the system along with compositional information. The information that is relevant to the IMDS relates to the generic material being used and the presence of substances of concern. Through this system the automotive OEM is able to provide specific information on the location and overall amounts of substances in the vehicle as required.

## Reporting Declarable Substances

The initial approach to dealing with declarable substances was for each OEM to develop individual lists of substances. In some cases the list would be limited to substances existing in a material that was present in the vehicle at the point of sale. In others, the list would include process chemicals that were used in the vehicle manufacturing process, e.g., cutting fluids, degreasing agents, etc. Thus suppliers had to report against multiple lists. After discussions with their suppliers, the OEMs in the United States, Canada, and Europe sought to develop a simplified reporting process. Thus a stakeholder group was formed that consisted of the entire supply chain from plastic suppliers through the suppliers in all tiers and OEMs. This group is called the Global Automotive Stakeholders Group.

The GASG divides the globe into three regions — the Americas, Europe/Africa/Middle-East, and Asia/ Pacific — and is managed by an 18-member steering committee composed of representatives from each region. Each region has a technical committee that is charged with recommending additions to or deletions from the Global Automotive Declarable Substances List. The recommendations are based on a set of criteria (see sidebar) that are both reactive to regulations and proactive based on sound scientific evaluation. In other words, the system that has been developed could allow inclusion of substances prior to the development of a specific regulation.

Reporting is driven not only by the identity of a substance but also by a threshold — the quantity present in a material. While the current regulations are based primarily on the potential of a substance to be problematic, future decisions would more appropriately be based on risk assessment, where both exposure and potency are considered.

This globally harmonized list provides great value by reducing the resources required for reports and probably improving the accuracy of reports. The GADSL is now available on the Web.

### Feature continues after sidebar

#### **Global Automotive Declarable Substance List**

The GADSL is a single, globally harmonized list of declarable substances with clear criteria and a transparent process to manage future versions. The GADSL file (available in PDF format) is the master document that lists individual declarable substances, substance groups (families) and describes how the GADSL should be used.

Criteria:\*

- The substance should be expected to be present in a material or part in a vehicle, and
- The substance is regulated or is projected to be regulated by a governmental agency or authority, or
- Scientifically valid methodology is used to assess if the substance offers a significant risk to human health and/or to the environment when present in a vehicle or a material or part in a vehicle
- May include the substance if it causes a functional problem in vehicle design and is present above a level shown to be problematic by an international industry standard test
- Reportable thresholds will be based on the lowest level required by regulation or reasonably required by scientific evaluation

(\*adapted from [www.gadsl.org](http://www.gadsl.org))

A formal system for declaring substances related to the information technology/electrical/electronics markets is also under discussion. The automotive experience serves as a reasonable template and is being evaluated. Original equipment manufacturers of electrical and electronic products and other stakeholders, including the chemical and plastics industries, also have begun to assess where standards can inform the overall system through work under the auspices of the International Electrotechnical Commission and recently through participation in ASTM Committee F40.

### Testing for Substances of Concern

The need to test for substances of concern is not uniform over the automotive supply chain. The initial formulations of plastic compositions are developed by technically sophisticated personnel in the chemical/ plastics industry. The composition of starting materials is known based on existing methods of analysis, as is the identification of residual monomers after polymerization. This is typical for thermoplastic formulations. Thermoset formulations from polyurethane plastics to paints, adhesives to sealants are cured either during the part formation process or on the part. With these materials the chemical/plastics industry has no control over the final composition, therefore the company that forms some polyurethane parts (such as seat foam or headliner) or that applies the coating, adhesive or sealant would be the one to report the formulation information into IMDS. Generally companies purchase either the reactive monomers or a formulation and have control over the identity and amounts of raw materials used. So they should be able to accurately describe the cured formulation, with some technical support from their suppliers.

As described earlier, the issue of identifying substances of concern gains a new and challenging dimension once plastics are commingled and potentially contaminated with foreign substances (solid, liquid, and gaseous) at the product end-of-life recovery stage. At the recovery stage, developing a representative sample is nearly as challenging as developing a test method. The plastic components or shredded material may be composed of large pieces, chunks, flakes, and fines. Some components of shredder residue will adsorb more contaminants than others due to greater porosity. Testing for contaminants in shredder residues at this stage presents a significant challenge.

Generally speaking, greater resource recovery value can be derived by separating the shredder residue into mixed plastics and non-plastic fractions as a first step. A mixed plastics fraction might find utility as a feedstock into a variety of recovery operations — mechanical recycling, feedstock and chemical recycling, fuel recovery, and energy recovery — depending on market needs and the existing infrastructure.

Where technically feasible, the greatest value can be obtained from separating individual generic plastic types — for example, polypropylene, polyurethane, and polystyrene — from a mixed plastics stream. This requires the development of sophisticated separation technology. Once this is accomplished, depending on the origin of the initial plastics feedstock, the issue of contamination with heavy metals or organics of lower molecular weight may still need to be addressed. Again, standard analytical test methods may not be available in many cases. While there are Environmental Protection Agency methods for the determination of PCBs in soil samples, for example, no universally accepted standard method has been developed for measuring PCBs in or on plastics particles recovered from shredder residues produced during a metals recovery operation. Currently, existing methods are being adapted and studies show significant variation in results. This variation could have many sources, from interferences by other organic compounds to inadequate sampling to work-up techniques. Automotive stakeholders involved in end-of-life vehicle recycling R&D are currently assessing the state of the art in this area.

### Conclusions

The requirement to report substances of concern exists in several market segments and is being addressed globally by industry associations and stakeholder groups. OEM and supply chain cooperation within the automotive sector has been highly productive in identifying criteria and reporting methods for substances of concern. Similar efforts are under way in the electrical and electronic products sector. The development of effective technical standards responsive to market needs will require the establishment of an interface between the standards community and various market groups. The new ASTM Committee F40 on Declarable Substances in Materials is working to help establish this interface.

The automotive example discussed in this article presents one of the greatest challenges to methods of development because of the complexity of the material mix and the number of contaminants that can be introduced in the stream. The initial manufacturing of a vehicle today largely uses virgin resin, and even though the analytical task is reasonably well understood, it can become complex and a significant cost consideration if not effectively defined. The degree of difficulty experienced in the analysis of plastics for declarable substances is magnified greatly when the plastics are not virgin resins but are recovered from end-of-life products. This is especially true in the case of automotive and appliance shredder residue but is true as well in the recovery of plastics from more defined streams such as end-of-life electronics. A further complication is that different types of end-of-life products exist within the consumer, business and industrial sectors. Methods development, therefore, should focus on the issues at end-of-life where the greatest uncertainty exists. This is an area where the expertise being assembled in Committee F40 will be especially helpful. □ //

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## Technical Standards Manager Spotlight

**By Don L. Williams, Group Leader, Reactor and Facility Safety  
Oak Ridge National Laboratory (ORNL)**

### Professional experience summary

Don Williams leads the Reactor and Facility Safety Group in the Nuclear Science and Technology Division of the Oak Ridge National Laboratory (ORNL). He has over 30 years of technical and leadership experience with the design, preoperational testing and licensing of commercial nuclear power plants, and the implementation of standards management, operational performance assessment, materials disposition, and information technology programs for a number of U.S. Government agencies. Don received a B.S. degree in engineering science from the Tennessee Technological University in 1974. He is an active member of the Standards Engineering Society and the American Nuclear Society.



**Don L. Williams**

In this edition of the "The Standards Forum," we highlight one of our longest-standing members of the Technical Standards Program (TSP) community. Don Williams has been involved with the DOE TSP since he first arrived at ORNL in August 1989. At that time, the interest level of DOE management in technical standards was waning, and funding support for maintaining any type of Department-level standards program (other than the DOE-EE commercial appliance standards program) was in the process of being withdrawn. However, with the release (in early 1990) of the MITRE report on the use of standards in the DOE defense complex and the subsequent publication of Defense Nuclear Facilities Safety Board (DNFSB) Recommendations 90-2 and 91-1, DOE management reconstituted and strengthened the TSP. Through a broadened charter (in Order 1300.2A) and additional resources, DOE planned to ensure that its line organizations were knowledgeable of and participated in developing/maintaining technical standards needed for facilities operation and programs implementation organizations.

Prior to coming to ORNL, Don worked as a licensing manager in an engineering organization responsible for the design and construction of commercial nuclear power plants. Anyone involved in the commercial nuclear industry knows the importance of standards and how their use can affect your facility's operating schedule, costs and relationship with customers and stakeholders. Don vividly remembers one event that will always remind him of this fact. The engineering organization had committed to use a national standard in its work. Subsequently, it was decided that an internal construction specification successfully implemented the national standard. The U.S. Nuclear Regulatory Commission (NRC) was advised by Don's licensing group of this change. However, a subsequent NRC audit identified that the construction specification applied the national standard incorrectly. The end result was an NRC-issued violation, an extended construction schedule (due to rework), increased costs, loss of the regulator's confidence and negative publicity for the organization. Lesson learned – What you don't know about standards compliance can hurt you.

**Don comments that even the Bible recognizes the importance of using standards correctly (Leviticus 19:35 – "Do not use dishonest standards when measuring length, weight and quantity").**

Since coming to ORNL, Don has been directly involved in the establishment of most of the infrastructure used to carry out the day-to-day activities of the DOE Technical Standards Program. To say that everyone working on the program benefited from advancements in information and communications technology would be just short of a gross understatement. For example:

- the emergence of the World Wide Web and enabling Internet technologies allowed DOE to make its standards immediately available to users and stakeholders,
- the use of PDF files ensured that standards could be made available electronically with a high degree of assurance that the technical integrity of the document's contents would be maintained,
- the development of periodic newsletters on the standards activities and standardization initiatives of DOE, other Federal agencies and national & international standards developing organizations has helped to make those activities and initiatives visible to DOE organizations that could be affected,
- the costs of document coordination cycles (i.e., getting both the documents and comments to and from users and stakeholders) have been reduced through electronic access and comment recording programs, like "REVCOM for TSP," and
- the costs of travel to meetings of standards writing groups and the Technical Standards Managers' Committee have been minimized through the increased use of telephone and video conferences.

Don maintains that this program infrastructure provides evidence of the progress made by DOE in (a) establishing effective communications within the agency on standards development, application and management activities, and (b) making information on technical standards and standardization initiatives more readily available to Department and contractor personnel. Still, as with any program, improvements are needed and should be pursued. Don hopes that resources will be made available to provide training for new program participants, organize and conduct annual program workshops, keep program publications up-to-date, and maintain an active dialogue with standards developing organizations on standards development / maintenance activities

*Continued on next page*



of interest to DOE.

Beginning in the late 1990s, budget reductions began to impact Don's (and ORNL's) involvement with the Technical Standards Program. However, Don's past licensing experience provided him with an opportunity to become involved in discussions with officials of the Russian Federation Government on the regulatory requirements that could apply to the conversion of surplus weapons-grade plutonium into fuel for use in commercial reactors in Russia. While in Moscow on a recent trip, Don experienced a minor problem that again highlighted the importance of standards to him. When he tried to plug his laptop PC into an electrical outlet, Don found that the plug adapter (obtained in Moscow) did not fit the outlet. However, after commenting on the problem to one of his colleagues (someone who also travels frequently to Russia), the colleague opened his laptop case. The case contained nearly a dozen adapters of different sizes. Subsequently, Don was able to find an adapter that fit the electrical outlet. Certainly, we in the U.S. take for granted the ability to use an electrical outlet for powering a laptop PC or some other electronic device. Don's experience in Russia has only increased his appreciation for the things in our lives made simpler by the use of standards.

When not on the road, Don devotes his time at home in Knoxville, Tennessee to his wife and two teenage children. Don is also actively involved in the work of his local church. Don comments that even the Bible recognizes the importance of using standards correctly (Leviticus 19:35 – "Do not use dishonest standards when measuring length, weight and quantity"). □

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## **DOE Revises *Integration of Environment, Safety, and Health* Into Facility Disposition Activities Standard**

**By Tony Eng, Director, Office of Facility Authorization Bases**

The latest revision to the DOE-STD-1120-98, *Integration of Environment, Safety, and Health into Facility Disposition Activities*, was formally approved for publication on June 22, 2005 as [DOE-STD-1120-2005](#) and is now available on the DOE Technical Standards Website.

Subsequent to the initial release of DOE-STD-1120-98, Nuclear Safety Basis Requirements were promulgated in the Title 10 of the Code of Federal regulation (CFR) Part 830, *Nuclear Safety Management*, Subpart B, *Safety Basis requirements*. The standard was identified as a "safe harbor" for preparing a documented safety analysis (DSA) for decommissioning and environmental restoration activities. The May 1998 version of the standard was not explicit regarding compliance with the requirements of Part 830.

Volume 1 of DOE-STD-1120-98 has been revised to focus on DSA requirements. It provides a DOE approved methodology for preparing a DSA for decommissioning of nuclear facilities, as well as environmental restoration activities that involve work not done within a permanent structure. Methodologies provided in this Standard are intended to be compliant with the 10 CFR 830 requirements. As described in Appendix A, Table 2 of this regulation, contractors may prepare a DSA by using the method described in DOE-STD-1120-98, or successor document and the provisions of 29 CFR 1910.120 or 29 CFR 1926.65, Hazardous Waste Operations and Emergency Response (HAZWOPER). Derivation of controls is also necessary for facility decommissioning projects that involve more than "low level residual fixed radioactivity."

Volume 2 of the standard is much broader in scope than Volume 1 and satisfies several purposes. However, it still retains a broad focus on integrated safety management and many of the appendices apply to all facility disposition activities including deactivation and long-term surveillances and maintenance. Integrated safety management expectations are provided in accordance with facility disposition requirements contained in DOE Order 430.1B, Real Property Asset Management. The collection of appendices in Volume 2 also provides additional guidance that supplements various practices described in Volume 1. A number of topics previously covered in both volumes of STD-1120-98 were either reconfigured or not retained in the current version. A comparison of the topics covered in the previous and the current versions of the standard is provided in Table F-1 of the current standard. In addition, rationale is provided for previous covered topics that are excluded from the revised standard. □



**Tony Eng**



**Hanford Reactor D D&D Work**

**Breaking Significant News****Brussels office opens to raise ASME's profile in Africa, Europe, Middle East**

**By Emily Smith, ASME NEWS**

To more directly serve members in ASME's large European market and to maximize attention on its products and services to industry in Europe, the Society is in the process of opening an office in Brussels. The office will serve members, current customers and new business prospects in European countries, while operating as a base for engineering activities in the Middle East and Africa.

The office opening is a key component of ASME's globalization strategy that is being developed as part of the Society's Continuity and Change Initiative. Currently, that globalization strategy is divided into four major market segments: Developed Markets, Big Emerging Markets, Technology Markets, and Underdeveloped Markets.

Western Europe, Asia and Pacific countries are the target areas for the Developed-Markets segment.

The Technology and Underdeveloped Markets are both organized around a strategy to achieve specific goals outside the United States.

"The overall goal of the Brussels office is to raise ASME's profile as an information and education provider in the European region," said ASME Executive Director Virgil Carter.

By opening an office in Brussels, ASME is planning not only to maintain but to build on its activity base for membership and partnerships by creating a local presence that will be in a better position to nurture relationships, develop local ASME activity and customize the content of ASME's products and services.

The operation of the office is being organized and maintained by MCI, a company that manages association projects. MCI staff will operate under the direction of ASME leadership. □

*This news article courtesy of ASME News Vol. 24 No. 6/June 2005, copyright 2005 (the American Society of Mechanical Engineers International).*

**Topical Committee Developments**

**By M. Norman Schwartz, Office of Nuclear & Facility Safety ( EH-22)**

**Construction Safety and Hoisting and Rigging Topical Committees Annual Meetings**

Patrick F. Finn, EH-22, chaired the annual meetings of the DOE Construction Safety Advisory Committee (CSAC) on May 10, 2005, and the Hoisting and Rigging Technical Advisory Committee (HRTAC) on May 12, 2005, at the Yucca Mountain Site Characterization Office in Las Vegas. These topical committees are formally chartered under the DOE Technical Standards program, with membership from across all of DOE. They provide technical input to EH for the associated technical standards and are a forum for consensus building, information exchange, and issue resolution in the technical community.

Items discussed at the CSAC meeting included were the proposed DOE *Worker Safety and Health Program* rulemaking effort, 10 CFR 851, and the [ANSI/ASSE A10.40](#) proposed standard addressing ergonomics in construction. (Note: The ballot results for the proposed ANSI standard were reported subsequent to the CSAC meeting and the proposed standard did not pass). Roy Gibbs, Phil Wilhelm, and Les Bermudez (DOE Office of Price-Anderson Enforcement, EH-6) made a presentation on 10 CFR 851 that included a review of the current contents of the proposed rule, review comments received, program implementation, self-reporting, and likely enforcement methodologies.



**M. Norman Schwartz**

At the HRTAC meeting, Dana Morgan, Fluor Hanford, led a discussion concerning provisions of Chapter 8, *Hoists*, and Chapter 13, *Load Hooks*, of DOE-STD-1090-2004, *Hoisting and Rigging*, that when taken together may result in prohibiting the use of hoists whose manufacturer supplied hooks do not meet the marking requirements of Chapter 13. Discussion of other parts of

*Continued on next page*

DOE-STD-1090-2004 included a proposal to address difficulties in receiving manufacturer approval for forklift attachments and modifications.

D. Morgan also provided an overview of recent activities of the [ANSI/ASME B30](#) standards committee including actions on B30.5, *Mobile Cranes*; B30.9, *Slings*; B30.26, *Rigging Accessories*; and the new *Below-the-Hook Lifting Device Design* standard (to supplement the B30.20 Safety Standard).

Both of the meetings were very well attended by committee members as well as by interested DOE and contractor personnel from the Las Vegas area. On May 11, attendees were provided the opportunity to participate in a full one-day Advanced Rigging Seminar conducted by Mr. Mike Gelskey, President of Lift-It, Inc., Los Angeles. The proceedings of all three days' meetings were video-linked to 6 DOE remote locations whose staff was unable to travel to Las Vegas. □

### **Special Meeting of the Joint TSP Topical Committee on Metrology/Accreditation**

The Joint TSP Topical Committee on Metrology/Accreditation has been seeking a permanent liaison with the National Institute of Standards and Technology (NIST) who would serve as a resource to the committee throughout the year and participate in the Committee's annual meeting. Dr. Robert Watters, Chief of the Measurement Services Division at NIST, Gaithersburg, MD, has agreed to serve that role.

Some of the committee members regularly attend the annual National Conference of Standards Laboratories Symposium that was held in Washington, DC, this year. Jim Allred, standards lab manager at Idaho National Lab (INL), chairs a Joint Government Metrology meeting at the conference each year. He agreed to let the committee use his meeting as a forum to introduce Dr. Watters to the members of the group that were at the conference. This meeting was held at 4:00 to 6:30 PM in the Conservatory Room at the Washington Hilton & Towers on Tuesday, August 9th. INL, Sandia National Laboratory, Los Alamos National Laboratory, Y-12, Savannah River National Laboratory, Honeywell-Kansas City, and Pantex were represented. Representation from outside DOE included the National Aeronautics and Space Administration (NASA), NIST Measurement Services Division, and the National Voluntary Laboratory Accreditation Program (NIST/NVLAP).

A number of issues were discussed during the meeting including the FY05/FY06 budget at NIST, best application of limited resources for metrology research and development in the DOE, how NASA and the Department of Defense allocate research and development dollars to NIST, discontinuation of specific measurement services at NIST, and measurement services that NIST only offers at specific times of the year. Dr. Watters took action items to provide additional information on several of these topics. □

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### **2005 Fire Safety Committee Meeting Generates Additional Initiatives**

***By Dennis Kubicki, Office of Facility Operations Support (EH-24)***

Brookhaven National Laboratory (BNL) hosted the annual meeting of the Department of Energy (DOE) Fire Safety Committee on Wednesday, June 15, 2005. The Committee, in existence since 1990, includes federal and contractor fire protection engineers, technicians and fire chiefs. Jim Bisker, chairman of the Committee (EH-22), convened the meeting in conjunction with the 2005 DOE/Contractor Fire Safety Workshop, a three-day assembly of fire safety professionals across the Department. The ambitious agenda included completing action on two previous initiatives as well as defining the scope of future activity. A summary of the Committee's deliberations, by issue, is presented below:

#### **Fire Data Collection and Analysis Initiative**

During the 2004 fire safety committee meeting, a subcommittee under Bill Boyce (EM-22) was formed to reevaluate the fire protection reporting requirements of DOE M 231.1-1A. This action was prompted by recommendations to DOE from both the Defense Nuclear Facility Safety Board and the (now defunct) DOE Fire Safety Commission.

B. Boyce presented the results of this reevaluation in the form of a draft report. The subcommittee recommended that DOE fire safety reporting metrics be revised, that DOE fire departments utilize fire incident reporting software associated with the National Fire Incident Reporting System (NFIRS), and that DOE Headquarters undertake more expansive trending and analysis of fire safety program data and statistics. After some discussion, the Committee voted to task the subcommittee with responsibility for completing the draft and submitting a final report to Frank Russo, Deputy Assistant Secretary for Corporate Performance Assessment (EH-3).

#### **Status of the Facility Safety Order (DOE O 420.1B) Revisions**

Jim Bisker discussed the status of the revision of the Facility Safety Order (DOE O 420.1 B). He indicated that REVCOM comments were incorporated and that the Order will be re-posted in early July for concurrence. The Committee discussed major aspects of the Order revision focusing on the intent and substance in certain sections. A current draft of the revised Order had been provided to Committee members for comment prior to the REVCOM posting.

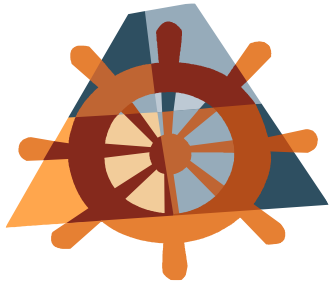
**Status of the Facility Safety Order Implementation Guide (DOE G 440.1-5) and the Fire Protection Design Criteria (DOE-STD-1066) Revisions**

The Committee decided to update the Implementation Guide for the Fire Safety Program since DOE 420.1B was finally adopted. Jim Bisker indicated that this revision would begin later this summer with the transmittal of a straw man copy to Committee members to initiate the process. Members were encouraged to e-mail any input they would like to see in this straw man document.

**DNFSB Recommendation 2004-1**

DNFSB Recommendation 2004-1, Oversight of Complex, High-Hazard Nuclear Operations pertains to safety oversight at DOE nuclear facilities. The Headquarters Office of Environment, Safety and Health committed to develop a DOE Assessment Oversight Manual to respond to this recommendation. This document will include a Fire Protection Criteria Review Approach Document (CRAD). A draft fire protection CRAD will be made available to the Committee for comment.

For additional information on the Committee meeting and future fire safety initiatives, please contact Jim Bisker on (301) 903-6542 ([jim.bisker@eh.doe.gov](mailto:jim.bisker@eh.doe.gov)). □



## Welcome Aboard the TSMC!

*(By M. Norman. Schwartz, Office of Nuclear & Facility)*

The **T**echnical **S**tandards **M**anagers (TSMs) are the backbone of the DOE Technical Standards Program! These knowledgeable individuals serve as their organization's standards point of contact and contribute to the coordination of Department-wide TSP activities. A great deal of their work time is spent in assuring that standards activities take place in a manner that will promote safe, economical, and efficient operations locally and across the DOE complex.

With nearly 90 active and mobile people involved in TSM activities, it can be a daunting task just to keep up with the retirements and reassignments affecting the TSM roster. This "Welcome Aboard" feature is designed to introduce you to the new TSMs and help you keep abreast of the rapidly changing make-up of the Technical Standards Managers' Committee (TSMC). The following are the recent changes in the membership list.

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## STANDARDS ACTIONS

### 1.0 DOE STANDARDS ACTIONS

The complete list of all DOE Technical Standards projects and their status is available on the Technical Standards Program (TSP) web page at <http://tis.eh.doe.gov/techstds/>. To access these standards, go to our web page, click on "DOE Technical Standards," then choose Projects, Approved Standards, Recently Approved Standards, or Drafts for Review, as appropriate, on the left frame of the page.

#### 1.1 New Projects and DOE Technical Standards in Revision

No entry was received in August 2005

#### 1.2 DOE Technical Standards Posted in RevCom for TSP

Your Technical Standards Manager (TSM) will initiate requests for specific reviewers to comment on these drafts. The list of TSMs can be found at: <http://www.tis.eh.doe.gov/techstds/contact/stdmgrs.html>. The full test of these documents are available for comment at RevCom for TSP <http://standards.doe.gov/login.jsp> located on the TSP website.

No entry was received in August 2005

#### 1.3 DOE Technical Standards in Reaffirmation

No entry was received in August 2005

#### 1.4 DOE Technical Standards Change Notices

No entry was received in August 2005

#### 1.5 DOE Technical Standards Recently Published

No entry was received in August 2005

### 2.0 NON-GOVERNMENT STANDARDS ACTIONS

#### 2.1 American National Standards Institute

American National Standards Institute (ANSI) publishes coordination activities of non-Government standards (NGS) weekly in ANSI Standards Action. Recent electronic copies are available on the ANSI Web Site at: [http://www.ansi.org/news\\_publications/periodicals/standards\\_action/standards\\_action.aspx?menuid=7](http://www.ansi.org/news_publications/periodicals/standards_action/standards_action.aspx?menuid=7). Refer to ANSI Standards Action for the complete list of changes and new publications, standards developing organizations, and information about submitting comments. Electronic delivery of selected documents is available through ANSI at: <http://webstore.ansi.org/ansidocstore/default.asp>.

ANSI also lists standards actions on new and revised American National Standards and International Standards Organization (ISO) Standards.

#### 2.2 American Society of Mechanical Engineers (ASME)

ASME lists recently published standards on the ASME web site at:

<http://www.asme.org/codes/newdocuments.html>. Refer to the ASME web site for the complete list of changes and new publications, standards developing organizations, and information about submitting comments.

ASME maintains monthly updates of drafted new standards as well as revised drafts of current standards, to meet new requirements at:

<http://cstools.asme.org/csconnect/PublicReviewPage.cfm>. A respective comment period end date follows each listed document.

#### 2.3 ASTM International

The listing of approved ASTM standards actions during 2005 is accessible at:

[http://www.astm.org/SNEWS/AUGUST\\_2005/acta\\_aug05.html](http://www.astm.org/SNEWS/AUGUST_2005/acta_aug05.html). Refer to the ASTM web site for the complete list of new publications.

#### 2.4 American Nuclear Society (ANS)

The ANS "What's New" web page at:

<http://www.ans.org/standards/new/> lists recently initiated projects, as well as ANS standards approved in recent years.

#### 2.5 National Fire Protection Association (NFPA)

The August 2005 NFPA News lists NFPA standards available for comment, newly proposed standards, newly issued standards, and the call for members on committees. View it at:

<http://www.nfpa.org/assets/files/PDF/NFPA%20News/nfpanews0805.pdf>.





## **THE STANDARDS FORUM & STANDARDS ACTIONS**

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